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IDENTIFYING VALUES: COMPARING FOUR METHODS OF VALUES
IDENTIFICATION

A Thesis

Presented in partial fulfillment of requirements

For the degree of Master of Arts

In the Department of Psychology

The University of Mississippi

by

EMMIE HEBERT

December 2016

ABSTRACT

Values have been described, from a behavioral perspective, as “freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself” (Wilson & DuFrene, 2009). Emerging research supports the psychological benefits of interventions with a values component. However, there has been little experimental research that explores systematic methods of getting participants and psychotherapy clients to identify their values. This study evaluated four methods of identifying values by comparing within-subject ratings of participant-generated values stimuli. Participants were undergraduate students at the University of Mississippi (N=68). The data suggest that having the participants choose from a list of presented values is an effective and simple preparation for values identification.

DEDICATION

This thesis is dedicated to two little girls who inspire me to keep working to make the world a better place for them. To Katherine and Gabby Beisser: I will forever be grateful for the privilege of being your Tauntie and Nanny.

LIST OF ABBREVIATIONS

ACT	Acceptance and Commitment Therapy
BATD	Behavioral Activation Treatment for Depression
VLQ	Valued Living Questionnaire
BAT	Behavioral Approach Task

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I. INTRODUCTION

A reinforcer increases the probability an individual will repeat a target behavior in the future (Cooper, Heron, & Heward, 2007). One method of identifying potential reinforcers is a preference assessment. After presenting an array of potentially reinforcing items before an individual, the researcher or clinician records how often the individual interacts with each of the items. The item the individual interacted with the most often is considered the most potent reinforcer. Clinicians typically use preference assessment with children, individuals with intellectual disabilities, and adults in institutions (e.g., Roane, Vollmer, Ringdahl, & Marcus, 1998).

This method of identifying reinforcers has been effective in controlled settings, such as a therapy room (Carr, Nicolson, & Higbee, 2000). However, typically developing adults often receive therapy in non- controlled settings and researchers have yet to clarify how to best identify potent reinforcers in these contexts. One reason that this type of research is difficult might be because some reinforcers are not tangible items (Blackledge & Barnes-Holmes, 2009). For example, the opportunity to spend time with a loved one may be a reinforcer, in that it increases the likelihood that behavior that was contingent on this opportunity will happen again. It is difficult to use traditional preference assessments for reinforcers like these that cannot be gathered into the non-controlled therapy setting. Thus, a systematic way of assessing these types of reinforcers for typically developing adults has not yet been developed by behavior analysts.

There are two types of reinforcers: primary and secondary. Otherwise called an unconditioned reinforcer, a primary reinforcer is “a stimulus change that functions as reinforcement even though the learner has had no particular learning history with it” (Cooper et al., 2007, p. 269). In other words, primary reinforcers require no training and may be thought of as the basic necessities for life, such as food, drink, air, sex, and social contact. Secondary reinforcers, or conditioned reinforcers, must be paired with a primary reinforcer. Cooper and colleagues define a secondary reinforcer as “a previously neutral stimulus change that has acquired the capability to function as a reinforcer through stimulus-stimulus pairing with one or more unconditioned reinforcers or conditioned reinforcers,” (p. 269). The first time a child contacts a gold star sticker it is a neutral stimulus. However, if every time the child gets a sticker he also gets a snack or some attention, the sticker may start to function as a reinforcer on its own, even when the snack or attention is not present.

Behavior Analysis

The properties of reinforcing stimuli may be altered with establishing operations (Michael, 1982). When establishing operations are in effect, the reinforcing values of stimuli either increase or decrease. For example, depriving an animal of food for some time may increase the reinforcing value of food for that animal. Conversely, after the animal eats a lot of food, it may be less likely to eat an otherwise appealing treat.

Establishing operations are effective for both human and non-human animals. However, verbally-fluent humans engage in verbal behaviors unseen in non-verbal humans and non-human animals (e.g., Devany, Hayes, & Nelson, 1986, Hayes, Barnes-Holmes, & Roche, 2001).

Through verbal behavior, humans may transform a neutral stimulus into a secondary reinforcer by verbally linking it to another reinforcer and without directly and physically pairing the two things. In other words, humans can use language to create reinforcers without direct training. This is a type of rule-governed behavior known as an augmental (Hayes, Zettle, Rosenfarb, 1989).

Augmentals may be divided into two types: formative and motivative (Hayes, Barnes-Holmes, & Roche, 2001). Formative augmentals establish neutral stimuli as reinforcers. In other words, formative augmentals verbally assign a value to a neutral stimulus, such as saying “these tokens are now worth money.” Motivative augmentals alter the reinforcing properties of previously reinforcing stimuli. An example of a motivative augmental would be, “Those flowers sure smell wonderful.” The flowers were available before the rule of “smell wonderful” was established, but this rule might increase the probability of someone smelling the flowers or buying flowers. Though researchers such as Hayes and colleagues (1989) have posited that augmentals are verbally mediated establishing operations in verbally able humans, there is virtually no experimental literature on this claim. Additionally, if this is true, researchers are still left guessing as to what to do about the lack of systematic assessment of motivative augmentals when the environment of typically developing adults is not controlled.

Contemporary Contextual Behavioral Science

Traditional behavior analysis has its roots in the scientific worldview of contextualism (Morris, 1988). Contextualism can take two forms: descriptive and functional (Hayes, 1993). Descriptive contextualists on the one hand, seek to understand and appreciate the relationship between an event and its environment. Functional contextualists, on the other hand, focus on the

prediction and control of behavior by the alteration of context. Intervention-oriented contextual behavioral scientists utilize this latter form of contextualism in their behavioral accounts, including those of language and cognition (Hayes, Barnes-Holmes, & Wilson, 2012).

Applied contextual behavioral scientists are particularly interested in changing behavior. Many real-world clinicians dedicate themselves to changing the behaviors of their adult clients who live outside of controlled laboratory-like environments. For example, typical outpatient psychotherapy sessions take place about once a week in an office for an hour, but the environment outside of that is not controlled. Friends and family of the client may influence the client's behavior in ways that a clinician or a researcher cannot manipulate. In place of tight environmental control, therapists might use augmentals as catalyst for change in lives of their psychotherapy clients.

Motivative augmentals can impact the strength of negative reinforcers. An individual might follow the rule "any show of anxiety reveals weakness of character." This rule establishes that behaviors that conceal or reduce anxiety should be highly reinforcing, which may make such behaviors more probable. An individual following this rule might take anti-anxiety drugs, stay home on anxious days, or act in overtly non-anxious ways to conceal felt anxiety. This type of behavior is an example of behavior under aversive control.

Aversive control, or behaviors controlled by aversive consequences, has long been recognized in behavior analysis as problematic (Sidman, 1989/2001). Sidman uses the example of schoolteachers using punishment to control the behavior of students. When a student does not grasp the material or does not perform well on a test, the feedback the student receives is often negative comments on their paper and perhaps even ridicule from classmates. This kind of

aversive control can lead to student dropout. Dropping out is maintained by negative reinforcement: avoiding these aversive experiences that happen when engaging in school-related behaviors.

Cycles of negative reinforcement can lead to significant distress in the clinical setting as well (e.g., Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Pang, Khoddam, Guillot, & Leventhal, 2014). For example, an individual with social anxiety may avoid social events, even if these events would increase the individual's quality of life. Because of this, it is important to supplement negative reinforcement with positive reinforcement. This is addressed in terms of values work in Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2012). In the ACT model, values are augmentals that establish or increase the potency of potential positive reinforcers.

ACT Definition of Values

Within the ACT community, Wilson and DuFrene (2009) defined values from a behavioral analytic perspective. They defined values as “freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself.” Their dense definition might be subdivided into four parts: freedom of choice, verbally constructed consequences, evolving patterns of activity, and the establishment of predominant reinforcers (Plumb, Stewart, Dahl, & Lundgren, 2009).

Values are freely chosen. Skinner's (1971) concept of freedom was not that of free will, but of the ability to make choices in the absence of aversive control. Part of the argument was that the behaviors we engage in may be controlled by either aversive or appetitive consequences. In other words, some behaviors have the same topography, but different functions. Consider a

mother putting her misbehaving child in time-out because this is what her mother-in-law told her to do. Avoiding her mother-in-law's nagging negatively reinforces the mother's behavior, thus implying the behavior is controlled by an aversive consequence. Alternatively, a mother may put her misbehaving child in timeout because she cares about the child and wants to teach the child appropriate ways to interact in their environment. Putting the child in an appropriate time-out matches the value of "being a good parent." From this perspective, parenting becomes a source of ongoing reinforcement, or a values-driven action, even though it is, at times, difficult. In ACT, values work is a way to identify such sources of positive reinforcement.

Verbally constructed consequences. According to Wilson and DuFrene (2009), values are not tangible things, nor are they goals that can be achieved. Values are constructed through verbal behavior. Using the previous example, if the mother was asked, "Why do you have so many rules for your child?" she may respond, "Because I love my child and care about being a good parent." The mother will never achieve or finish being a parent for her child. Even when the child grows up this mother is still a parent.

Evolving patterns of ongoing activity. While values may remain constant for long periods of time throughout a person's life, the behaviors that serve those values may change (Wilson & DuFrene, 2009). The mother who behaves in line with her parenting value may change diapers or ignore attention-maintaining tantrums when the child is young. When the child is older, the mother might apologize for saying something hurtful in the heat of an argument with her child. While the mother's value of being a good parent has remained constant, her behaviors have changed over time and with the developmental needs of her child.

Establishing predominant reinforcers. According to Wilson and DuFrene (2009), when a value and behavior are linked through a relational network, engaging in the pattern of behavior

itself can function as reinforcement. This is what Wilson and DuFrene meant by “intrinsic in engagement.” While many actions linked to values have positive consequences, these consequences are sometimes small and incremental or the consequences may occur quite distally from the behavioral patterns that produce them. The impacts of healthy eating, exercise, pursuing education, and difficult parenting behaviors such as using time-out for misbehaving children often produce aversive stimulation in the short term, but persisting in those patterns makes positive outcomes more likely in the long term. Values are augmentals that verbally link moment-by-moment behaviors to their more distal outcomes. Through such augmentals, each action is linked verbally to the reinforcing value of behavioral consistency.

Faithfulness to the pattern may even be reinforcing when long-term outcomes are entirely unavailable. Consider parents of a terminally ill child. Parents do not stop valuing good parenting even though the typical long-term consequences of good parenting have vanished. There is an advantage to using augmentals to enhance and bring focus on these process-oriented reinforcers, as opposed to long-term endpoints; though the long-term contingencies may be absent or unknown, immediate small actions consistent with values are nearly always possible.

Though this is only one perspective of values and valuing, it has proven beneficial. ACT interventions with a values component have been effectively applied to increase quality of life in those struggling with anxiety (Codd, Twohig, Crosby, & Enno, 2011), depression (Zettle, Rains, & Hayes, 2011), and psychosis (Gaudiano & Herbert, 2006). See Plumb, Stewart, Dahl, and Lundgren (2009) for an overview.

Addressing Values in Therapy

Pleasant Event Schedule. An early hint of values in therapy is the Pleasant Events Schedule (PES) by MacPhillamy and Lewinsohn (1982). The inventory includes a list of 320

activities that a client can rate how often they have engaged in each activity in the past month and how enjoyable they found each activity when engaging in it. Clinicians use this list to help clients become aware of the frequency of positive events in their lives and their subjective enjoyment of these events.

While pleasant events are a step in the right direction, they do not serve the same long-term function as values in therapy. The events may be related to values (e.g. eating dinner with friends is related to the value of being a good friend), but the protocol does not state that explicitly, nor has it been studied in this regard. Behavioral Activation Treatment for Depression combines these approaches by taking goals set by the client that are consistent with their chosen values and increasing the frequency of the behaviors related to those goals and values.

Behavioral Activation Treatment for Depression. Clinicians using Behavioral Activation Treatment for Depression (BATD; Lejuez, Hopko, & Hopko, 2001) uses a values-driven framework to increase the frequency of valued activities amongst individuals with depression. In BATD, clinicians work with clients to identify values using a values assessment protocol (adapted from Hayes et al., 1999). The clinician and client then develop goals that the client can work towards that would help them contact specific values (Lejuez et al., 2001). A structured schedule of activities may be set that the client can follow and report on in sessions.

Acceptance and Commitment Therapy. Values-driven action, also known as valued-living, is the main goal of ACT (Hayes et al. 2012a), as opposed to reduction of symptoms like anxious worry or negative thinking (Wilson & Murrell, 2004). Consider a client presenting with recurrent worries that their friends do not like them. A symptom-reduction oriented therapist might lead them through exercises designed to reduce the frequency and intensity of those

worries, such as with cognitive restructuring (Beck, 2011). An ACT therapist, in contrast, would target behaviors that would bring the client closer to the things he or she cares about (i.e. going to a party with friends), without directly challenging or changing these thoughts or the feelings associated with them.

Through ACT, clinicians can help clients approach their values in a number of ways. One example is using an exercise and worksheet called entitled “The Bull’s Eye” (Lundgren et al., 2012). Using this exercise, individuals focus on four particular values domains: work/education, leisure, relationships, and personal growth/health. Clients first identify their values in those four areas. They then receive an image of a bull’s eye, which is split into four quadrants representing the four values domains. Therapist then instruct them to put an X on the image at the point where they feel they are at that point in time for each of the four domains. The middle of the image (i.e. the bull’s eye) is labeled “My life is just as I want it to be”. The edge of the image is labeled “My life is far from how I want to be”. The worksheet can then be used as a guide to further discuss client values in therapy.

Hayes and Coyne (2010) developed a card system to encourage younger clients to get in contact with the things that they care about. Their Values Cards include images and simple phrases that youth can visually see and understand. For example, the “Forgiving” Values Card has a picture of a two people hugging. The images are bright and eye-catching, but also ambiguous enough to occasion a variety of interpretations and open-ended conversations on values held by young people. These cards might be used in individual or group therapy.

Another way to get therapy clients in contact with values is through values-based experiential exercises, a prime example of which is the Sweet Spot meditation (Wilson & Sandoz, 2008). Therapists ask the client to bring to mind a sweet moment in their life. The

therapist asks them to notice small details of the sweet moment, such as colors, temperature, and smells. They ask their clients to notice any thoughts or feelings that were present in that moment of sweetness. After the exercise is complete, the debrief might entail working with clients to connect their sweet moments to values they currently hold or would like to develop.

Values in the Experimental/Research Setting

Although such values work is ongoing in several clinical approaches such as ACT and BATD, these interventions are complex, making experimental analysis difficult. As with many aspects of behavioral treatment, experimental analogues can form an empirical and conceptual bridge between clinical intervention and well-controlled laboratory research. In other words, experimental research in the lab can provide a foundation for improving or coming up with new clinical interventions.

Values intervention research includes different methods to get participants thinking about their values. One method is interviewing. For example Pérez-Blarrina and colleagues (2008) conducted a pain task that measured the effects of an ACT-values protocol, a pain control-values protocol, and a no-values protocol. In the ACT protocol, participants were prompted to think and talk about times when they did something difficult because it was in line with something they valued. In this condition, the pain was framed as values-driven action. In the pain control-values protocol, the pain was framed as going against valued action. Participants in the ACT-values group showed significantly more tolerance for pain than those in the other two groups, as evidenced by continuing the pain task even after a “very much pain” rating.

Another method is values writing. For a set time, participants write about areas in their lives that are meaningful to them. Values writing has been shown to increase academic performance (Cohen, Garcia, Apfel, and Master, 2006; Miyake et al., 2010), openness in

smokers, (Crocker, Niiya, & Mischkowski, 2008), and greater feelings of love, connectedness, empathy, and giving (Crocker, Niiya, & Mischkowski, 2008).

The most common methods of obtaining values from research participants are through questionnaires that give participants a list of common values and have them rank their values and/or evaluate them on a Likert-type scale. These studies include questionnaires such as the Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens, & Roberts, 2010), the Values Questionnaire (Allport, Vernon, & Lindzey, 1960), Portrait Values Questionnaire (PVQ; Schwartz, Melech, Lehmann, Burgess, & Harris, 2001) and the Personal Values Questionnaire-II (PVQ-II; Ciarrochi & Blackledge, 2006). For example, Creswell and colleagues (2005) used the Values Questionnaire where five personal values (religion, social issues, politics, theory, and aesthetics) were defined. Participants were then asked to rate and rank these values in order according to their personal preference. After ranking, participants were split into two groups, one answered multiple-choice questions about their top-ranked value, and the other answered multiple-choice questions about their fifth-ranked value. The top-ranked value group showed lower cortisol levels after stress tasks than the fifth-ranked value group.

Sandoz and Hebert (2015) compared four methods of generating values related stimuli based on frequency of methods used in previous research. Participants chose stimuli by: a) picking values words from a values lexicon, b) writing values related words after being prompted by common valued domains, c) writing values-related words after writing about values for ten minutes, and d) picking values-related images. All methods were completed using index cards, pencil, and paper. Results indicated that the highest rated stimuli came from the condition where participants wrote about their values for some time before generating their own values-related stimuli.

Present Study

There is, thus, a growing interest in experimentally manipulating contact with values to examine the impact of values on behavior. However, there has been little research on which method of producing values stimuli, such as values writing or choosing from a list of common values, produces the most effective experimental stimuli. Knowing this method would allow the investigator to quickly and easily make values present (or not present) for participants, such as in a computer-learning paradigm. This study is a replication and expansion of Sandoz and Hebert (2015) and aims to examine the effectiveness of the same four methods of generating participant's connection with values using a computer paradigm. We hypothesized that this study would yield similar results as those in Sandoz and Hebert, with values writing having the highest rated values stimuli.

II. METHODOLOGY

Participants

Participants were 68 university undergraduate students who volunteered to participate in this study for course credit. Participants ranged in age from 18 to 53 ($Mdn = 19.0$, $M = 20.35$, $SD = 5.36$) and were predominately White (58.8%), followed by African American (27.9%), Asian American (8.8%), Hispanic (1.5%), and “Other” (2.9%). The majority identified as female (60.3%). Upon arrival, participants were presented with a brief description of the study including its purpose, risks, and benefits.

Procedures

As potential participants arrived at the scheduled time and place of the study, they received a consent form from a research assistant. Research assistants described the basic research procedures, incentives, right to withdraw, risks, and the guarantee of anonymity. After consent, participants were lead to a computer in a small solitary room to complete four values identification tasks. Before the tasks began, the participants were presented with the following definition of values on their computer screen: “Your values are reflections of what is most important in your heart: what sort of person you want to be, what is significant and meaningful to you, and what you want to stand for in this life. Your values provide direction for your life” (Harris, 2008, p. 34).

The order in which the values identification tasks were presented varied by participant appointment time. As in the experiment by Sandoz and Hebert (2015) during each task, the

participant is prompted to identify five stimuli, either self-generated or chosen from a list.

Additionally, once on the screen with stimuli or a prompt, the participant could not stay in the tasks for a period of time shorter than three minutes or longer than fifteen minutes. The tasks included:

1) *Values Word Selection*. Participants were presented with 30 words from Bardi, Calogero, & Mullen's (2008) values lexicon and 12 valued domains from the VLQ-II. They will be given the instructions, "Here are some words that represent an assortment of values. Please think about these words and select five (5) words that remind you of your values. You can move on to the next page after three (3) minutes."

2) *Picture Selection*. Participants were presented with 36 images and the instructions, "Please select five (5) images from the choices below that represent your values. You can move on to the next page after three (3) minutes." The images were the same as those used in the values identification experiment by Sandoz and Hebert (2015). These images represent values listed in the VLQ-II (i.e. images of families, careers, spirituality, etc.) and had three images for each of the twelve domains.

3) *Values Word Generation*. Participants were presented with a list of the twelve valued domains from the VLQ-II and the instructions, "Here are some areas of life that some people value. Think about these areas and type five (5) words that represent your values. Your words do not have to be from this list, but rather, other words that represent your values. You can move on to the next page after three (3) minutes."

4) *Values Writing and Word Selection*. Participants will be presented with the instructions, "The next page has some areas of life that some people value. Think about these areas and write freely about the things that you value. You don't have to worry about spelling or

grammar. You will have three (3) minutes before you are automatically advanced to the next page. There will be a timer at the bottom of the screen counting down until the next screen appears.” On the next page, a list of the twelve valued domains from the VLQ-II and the instructions, “Here are some areas of life that some people value. Think about these areas and write freely about the things that you value. You don't have to worry about spelling or grammar.” After three minutes, the participants will be advanced to the next page. This page will have what they wrote and the instructions “Please type five (5) words from what you have written that best represent what you value”.

After each task, participants rated each of the five stimuli that they have chosen on 1) how meaningful it is to them and 2) how much it reminds them of something important in their lives on a 7-point Likert-type scale ranging from 1 (*Somewhat Meaningful* or *Little Reminder*) to 7 (*Very Meaningful* or *Very Strong Reminder*). Finally, participants completed a demographic questionnaire assessing their age, gender, ethnicity, class, and GPA.

All participants were debriefed upon completion of the study. This included a description of the reasons for the study, references for more information, and referral to on-campus counseling services where needed. The debriefing form was provided to the participants.

III. RESULTS

Pre-experiment quiz

To assess whether participants read and understood the values definition provided in the beginning of the experiment, we asked participants two questions about the definition of values. Both of these questions were multiple-choice questions with four answer choices. If a participant answered incorrectly, they were presented with the questions a second time. After this, the study continued, even if the participant answered incorrectly a second time.

Of the 68 participants, 26 (39%) failed the probe questions. Of those 26, 19 (73%) failed the probe questions a second time. We used mixed factorial ANOVAs to examine if there were differences in responding in the experimental task between participants that passed or failed the values definition probes. For the first probe, there were no statistically significant differences found in the pattern of responding between those that passed and those that failed the probe questions: $F(3, 198) = 0.575, p = .632$. There were also no statistically significant differences between participants that passed the first probe and those that passed or failed the second probe: $F(6, 195) = 0.490, p = .815$. Because there were no statistically significant differences in response patterns between participants that passed or failed the probes, all participants were retained in subsequent analyses.

Descriptive statistics

We calculated meaning ratings for each of the four conditions for the extent to which the participants found the stimuli meaningful and how much it reminded the participants of something important in their lives. These ratings were examined for normality, skew, and

kurtosis using the Shapiro-Wilk test. Based on the Shapiro-Wilk values, ratings for all conditions were statistically significantly skewed at the $p < .001$ level, with negative skew ranging from -1.645 ($SE = .291$) to -1.113 ($SE = .291$) for meaning ratings and -1.778 ($SE = .291$) to -0.874 ($SE = .291$) for reminder ratings.

Analytic strategy

In our study, the independent variable was the values identification conditions, while the dependent variables were ratings of meaningfulness and importance of their chosen stimuli. Repeated measures ANOVAs were used to analyze the mean task ratings within participants for each of the four conditions. The effects size η_p^2 was also calculated for all appropriate analyses. Though ANOVAs have an assumption of normality, the analysis is a fairly robust to this assumption (Khan & Rayner, 2003). Another assumption of ANOVAs is that the data show sphericity, that is, that the variances of the differences between all condition pairs are equal. Mauchly's test of sphericity suggested that the data did not violate this assumption (meaning: $\chi^2(5) = 5.736, p = .333$; reminder: $\chi^2(5) = 2.528, p = .772$). All tests used a statistical significance of $\alpha = .05$.

Although ANOVA F -values are fairly robust analyses even when data are statistically significantly skewed, non-parametric analyses such as Friedman Test and Wilcoxon signed-rank test do not assume Gaussian distributions, making them good alternatives to these data (Howell, 2013). In the following sections, we will report results from parametric and non-parametric tests. We do so to couple the ease of interpretation the comes from the familiar ANOVA with the fewer violated assumptions the Friedman Test and Wilcoxon signed-rand tests make of the data.

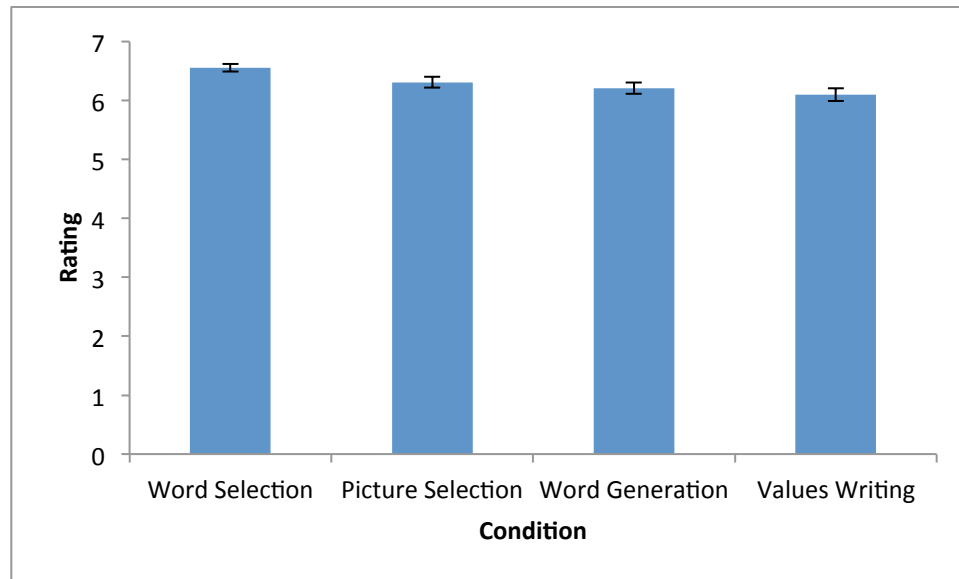
Meaningfulness of chosen stimuli

A repeated measures ANOVA suggested the average meaningfulness ratings differed

across some of the experimental conditions: $F(3,65) = 11.111, p < .001, \eta_p^2 = .339$. To explore the specific differences, we employed pairwise post-hoc within-subjects F -tests. To control for family-wise error rate, we adjusted the critical alpha-level with Bonferroni corrections ($\alpha/6 = .008$).

Among the four tasks, stimuli from the word selection task had statistically significantly higher meaning ratings, on average, than those selected from the picture selection ($p < .001$), word generation ($p = .008$), and writing ($p < .001$) tasks (See Figure 1). There were no other statistically significant differences in meaning ratings among task pairs: word generation and writing ($p = 1.00$), word generation and picture selection ($p = .163$), and writing and picture selection ($p = .943$).

Figure 1. Average Meaning Ratings for Each Condition

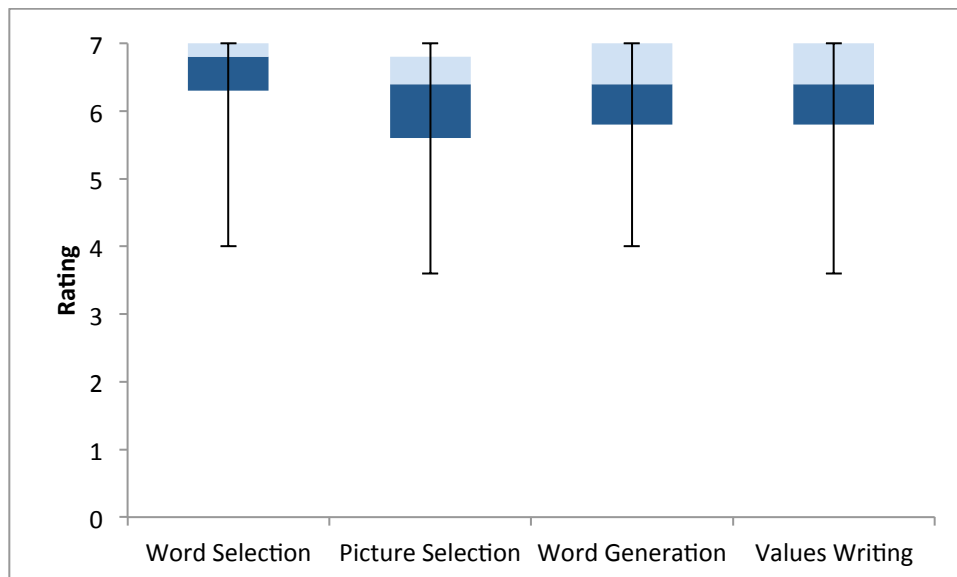


Note: The bars represent the standard error.

Similar results were found with the Friedman Test (See Figure 2). There was a statistically significant difference in meaning ratings among the four tasks ($\chi^2(3) = 29.729, p < .001$), and the Kendall's coefficient of concordance was .15, which is an effect size that, in this case, indicated a relatively weak difference among the tasks. Post hoc analysis with Wilcoxon signed-rank tests was conducted with the same Bonferroni correction applied ($\alpha/6 = .008$).

As with the post-hoc F -tests for the repeated measures ANOVA, stimuli selected from the word selection task had statistically significantly higher meaning ratings than stimuli selected from picture selection ($Z = 4.77, p < .001$), word generation ($Z = 3.07, p = .002$), and writing tasks ($Z = 3.95, p < .001$). There were no other statistically significant differences in average meaning ratings found among task pairs: word generation and writing ($Z = 0.95, p = .344$), word generation and picture selection ($Z = 2.21, p = .027$), and writing and picture selection ($Z = 1.39, p = .163$).

Figure 2. Median Meaning Ratings for Each Condition

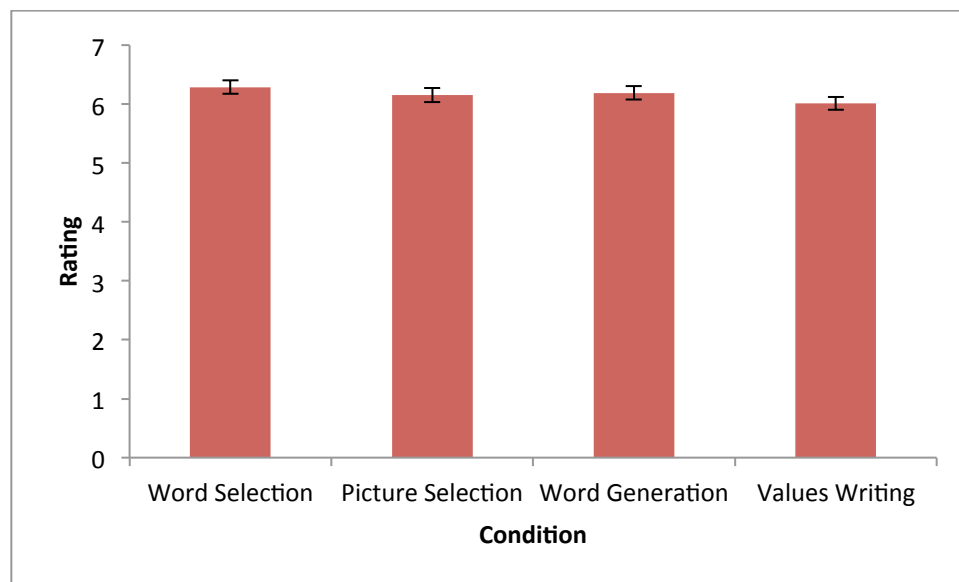


Note: Middle line (where the two boxes meet) represents the median. The bars represent the range.

Importance of chosen stimuli

Repeated measures ANOVA showed no statistically significant differences in importance ratings among the tasks ($F(3,65) = 2.04, p = .117, \eta_p^2 = .086$) (see Figure 3). The Friedman Test yielded significant results ($\chi^2(3) = 13.694, p = .003$); however, Kendall's coefficient of concordance of .06 indicated a relatively weak difference among the tasks.

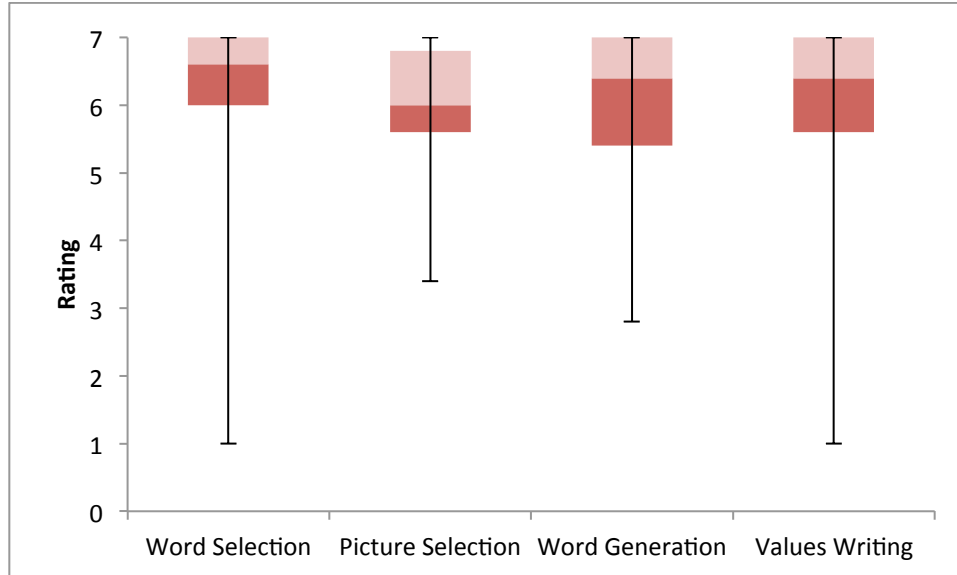
Figure 3. Average Importance Ratings for Each Condition



Note: The bars represent the standard error.

The only statistically significant difference in the ratings of how much the stimuli from the tasks reminded the participants of something important in their life was between the word selection task and the picture selection task ($Z = 2.94, p = .003$), with the word selection task having, on average, higher ratings than the picture selection task. There were no other statistically significant differences in reminder ratings found among task pairs: word selection and word generation ($Z = 0.96, p = .340$), word selection and writing ($Z = 1.56, p = .118$), word generation and writing ($Z = 0.11, p = .914$), word generation and picture selection ($Z = 1.74, p = .082$), and writing and picture selection ($Z = 2.018, p = .044$) (Figure 4).

Figure 4. Median Importance Ratings for Each Condition



Note: Middle line (where the two boxes meet) represents the median. The bars represent the range.

The difference between the ANOVA and Friedman’s Test for these ratings may be because of the severely skewed data. As stated previously, the Friedman’s Test does not have the assumption of data with normal distributions. Therefore, the Friedman’s Test results may fit these data better than the ANOVA.

Chosen stimuli

There were some common stimuli identified throughout each of the four methods of values identification (See Appendix). For example, participants chose “family” more often than other stimuli, with 97% of participants choosing “family” stimuli in at least one of the four conditions (see Table 1). “Spirituality” was commonly identified, with 80.6% of participants choosing “spirituality” stimuli in at least one of the four conditions. This finding is not unexpected, given that the sample was from a Southern population that has a strong religious culture (see Grossman, 2012 for a review of Southern culture).

“Friends” was also a value that was frequently identified. Although “friends” was not a

category in the picture condition because it is not a VLQ-II domain, we recorded the images from the “social” category as “friends”. Given that recoding, 79.1% of participants choosing “friends” stimuli in at least one of the four conditions.

IV. DISCUSSION

The purpose of this study was to replicate and extend Sandoz and Hebert's (2015) study comparing different methods of values identification. In this study we used computers rather than paper and pencil and changed the rating scales in an effort to increase variability in rating responses. We compared ratings for how meaningful stimuli were to participants and how much they reminded the participants of something important in their life across methods using a within-subjects design.

Regarding *value meaning*, results indicated that selecting values words from a presented list yielded higher ratings than the other three methods of values identification (picture selection, values word generation, and values writing and word selection). This finding held true for both the parametric analysis (repeated measures ANOVA) and the non-parametric analysis (Friedman Test).

Using the non-parametric analyses for *value importance*, stimuli from word selection had higher ratings than picture selection. However, there were no other significant differences among other methods. Parametric analysis showed no statistically significant differences in values importance among any of the methods. Due to notable skew in the data, the non-parametric analyses seemed more appropriate for interpreting the results.

Implications

The results of this study yielded two primary implications. First, finding that word selection may produce more meaningful values could be useful for experimenters and clinicians since it is a relatively simple task to administer. Second, because the differences between ratings

were small, it seems unlikely that there would be negative consequences for a researcher to choose one method over another.

Using word selection. All things held equal, clinicians benefit from logistically simple interventions. Word selection is simple to administer and might involve less time to prepare and administer. It might also be beneficial to clinicians for the same reasons. For example, a clinician could give a client a list of values words (e.g. the values lexicon from Bardi, Calogero, & Mullen, 2008) before an intake and those words could be used as a starting point of the intake interview. By asking about values, the clinician, together with the client, could come up with therapy goals consistent with the client's values. If a client chooses the value of education, for example, the clinician and client could discuss increasing behaviors in alignment with that value, such as going to class and engaging with course material.

Using any method. Given that the average differences between the ratings from the conditions were small, it is unlikely that the choice of selection method would significantly impact the results of a study involving a values preparation. A researcher might choose one method over the other because of time constraints or participant variables. For example, if a researcher were interested in the reasons why individuals value certain domains they might include the values writing condition. If participants have reading difficulties, picture selection might be a more appropriate method of values identification compared to methods that require reading.

A clinician can also benefit from having the freedom to choose from multiple methods of values identification. Like the researcher, the clinician may choose one method over another because of time constraints or participant variables. The clinician may also describe each method

to a client and give them the opportunity to choose which method is most appropriate to use to identify their values.

Limitations and future directions

Response variation. Sandoz and Hebert (2015) used a 4-point rating scale with anchors starting at *Not Meaningful* and *Not a Reminder*. Since the prompt asked the participants to pick stimuli that represented their values, we assumed that the chosen stimuli had at least a small amount of meaning. Therefore, we hypothesized that setting the scale to go from 1 indicating *Somewhat Meaningful* or *Little Reminder* and 7 indicating *Very Meaningful* or *Very Strong Reminder* instead of starting at *Not Meaningful* or *Not a Reminder* would create more variability in responding. The results indicate otherwise. It could be that the negative skew in the results was an artifact of trying to measure meaningfulness in already very meaningful stimuli. Across the four conditions, each subject identified a total of 20 stimuli. If we had the subjects rank order those 20 stimuli, we could assess which methods had the highest probability of producing top-ranked stimuli. Such a forced ranking might distinguish the meaningfulness of stimuli showing a ceiling effect with a simple Likert-type scale.

Order effects. It is possible that the order in which the conditions were presented to the participants affected the way they responded to the condition prompts. For example, if the word selection condition came before the word generation condition, the participants may use words from the values word list in the word selection condition when generating words that represent their values. However, this hypothesis is beyond the scope of this particular study. Our conditions were presented in a randomized order, meaning that each participant got one of

twenty-four possible condition order combinations. Future research could examine the effects of order by either systematically presenting the order of conditions to participants or by using the methods in our current study with substantially more participants.

Self-report. The current study employed self-report of meaningfulness and importance of chosen values stimuli. The potential problems with self-report in research are well documented (e.g. Boase & Ling, 2013; Tenkorang, Sedziafa, Sano, Kuuire, & Banchani, 2015; Wilcox, Bogenschutz, Nakazawa, & Woody, 2013). An alternative method to test the potency of values might be to use the chosen stimuli as a source of motivation to engage in a difficult or unpleasant task.

For example, an experimenter could conduct a behavioral approach task (BAT) where the number of inches approached provides chances in a lottery for a relevant charitable organization or a valued activity. The task would include some previously established aversive stimulus (e.g. a spider for a spider phobic or a used tissue for someone with contamination fear) paired with the chosen value. A participant that values spirituality may move toward a feared stimulus if the result of his approach results in money donated toward building a church in his hometown. Another participant that values friendship may move toward an aversive stimulus if the result of her approach results in a paid dinner for her and a friend. Using this preparation the experimenter does not merely ask the participant how meaningful the valued stimulus is, but rather, behaviorally assesses how meaningful it is.

Sample. The sample in this study included university students, mostly female and white, from a single university in the southern United States. Individuals of different ages, genders, and ethnicities might have a different distribution of values based on the methods of the assessment than those represented by the sample. The pictures in the picture selection condition were

originally chosen by undergraduate students at a different university in the southern United States (Sandoz & Hebert, 2015). The values words in the word selection condition were originally drawn from American newspapers in the early 2000's (Bardi, Calogero, & Mullen, 2008). It might be that individuals who are not undergraduates, Southern, or American would not find the stimuli in these conditions as meaningful as the ones they generate themselves (i.e. in the word generation and writing conditions).

Additionally, participants were not screened for any psychological difficulties. If a values identification method is used in a clinical setting, the method might differ depending on the characteristics of the client. For example, Hirsch, Hayes, Mathews, Perman, and Borkovec (2012) examined verbal thinking and image-related thinking in participants with Generalized Anxiety Disorder (GAD) and participants without diagnoses. Participants with a GAD diagnosis reported a significantly higher rate of verbal thinking than image-related thinking when they were in a state of worry. Participants without a diagnosis did not have a significant discrepancy between the amount of verbal thinking and image-related thinking. It may be that the verbal tasks (word selection, word generation, and values writing) would produce more salient stimuli than the values picture selection task for individuals with GAD if they are in a state of worry while completing a values identification task.

Using Values In Research: Beyond Identification. The stimuli chosen from any one of these methods could be used in further research on the functional relationship between and individual's values and their behavior. It would be of interest to explore how the presence or manipulation of chosen values stimuli could alter specific behavioral patterns (e.g. behaving in ways consistent with chosen values in the presence of aversive stimuli or significant work

demands). This research would experimentally inform the role that values can play in behavior maintenance and modification in real-life contexts.

Conclusion

Psychotherapy interventions with typically developing adults often encourage clients to do very difficult things to improve their mental health. For example, clients with depression are asked to engage in behavioral activation (e.g. Lejuez et al., 2001). For clients with anxiety-related difficulties, exposure-based treatments are the most effective intervention (Foa & McLean, 2016). Clinicians would agree that both behavioral activation and exposure interventions are difficult for clients. However, there has been little research on what can function as a reinforcer for engaging in these interventions other than assuming that symptom remission will be an adequate reinforcer.

While clinicians working with children or adults with intellectual and developmental disabilities frequently use preference assessments to determine potentially reinforcing stimuli (e.g., Roane et al., 1998), there are very few protocols for systematically assessing or selecting potential reinforcers for typically developing adults. Protocols with goal-related behaviors have come close. For example, the previously mentioned Pleasant Events Schedule by MacPhillamy and Lewinsohn (1982) includes a list of 320 activities that an individual can rate on how often they have engaged in each activity in the past month and how enjoyable they found each activity when engaging in it. This list and ones like it are often used in therapies such as Cognitive Behavior Therapy (Beck, 2011) to create goals that the client can work towards while in therapy. It may be that something like a valued-event scheduling might bring to bear more potent reinforcers than pleasant event scheduling. However, research on best reinforcers for typically developing humans has largely languished in modern empirically supported treatments, with the

exception of ACT. Even within ACT research, empirical studies on values have lagged behind other ACT processes such as experiential avoidance (e.g. Feldner, Zvolensky, Eifert, & Spira, 2003), acceptance (e.g. Campbell-Sills, Barlow, Brown, & Hofmann, 2006), and cognitive fusion (Masuda, Hayes, Sackett, & Twohig, 2004).

Not only are systematic assessments of values missing from protocols, but they are also missing in clinical interviews. For example, the Structured Clinical Interview (e.g. SCID-IV; First, Gibbon, Hilsenroth, & Segal, 2004) and the Anxiety Disorders Interview Schedule (e.g. ADIS-IV; Brown, DiNardo, & Barlow, 1994) both cover a plethora of experienced symptoms but leave the clinician to only assume that symptom reduction would be a reinforcer for engaging in potentially difficult interventions such as behavioral activation or exposure.

Thus, a systematic and empirical analysis of values is lacking. Only in recent years have researchers and clinicians in the area of Acceptance and Commitment Therapy begin to approach values as reinforcers for behavior change (Hayes, Strosahl, & Wilson, 2012). Other therapeutic protocols are beginning to incorporate a values assessment in their procedures as well (e.g. BATD; Lejuez et al., 2001). We know that interventions with values procedures can play an important role in helping individuals in difficult situations (Hayes, Strosahl, & Wilson, 2012). Individuals struggling with anxiety (Codd, Twohig, Crosby, & Enno, 2011), and depression (Zettle, Rains, & Hayes, 2011) show benefits when introduced to an intervention with a values component.

This study is a small step in examining existing methods of values identification in an effort to systematically examine values of therapy clients and research participants. Our findings suggest that selecting values from a list of words is an effective way to get individuals to identify the

things they care about. This simple preparation will produce stimuli that both clinicians and researchers can use in behavior-change interventions.

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APPENDIX

APPENDIX

Participant-Identified Values Stimuli

Chosen Value Stimuli	Condition								Total	
	Word Selection		Picture Selection		Word Generation		Writing			
	N	%	N	%	N	%	N	%	N	%
family	44	65.7%	52	77.6%	48	71.6%	58	86.6%	65	97.0%
spirituality	32	47.8%	39	58.2%	39	58.2%	34	50.7%	54	80.6%
friends	23	34.3%	27	40.3%	36	53.7%	43	64.2%	53	79.1%
education	21	31.3%	19	28.4%	32	47.8%	31	46.3%	47	70.1%
self-care	17	25.4%	23	34.3%	7	10.4%	6	9.0%	35	52.2%
recreation	3	4.5%	32	47.8%	3	4.5%	0	0.0%	34	50.7%
parenting	4	6.0%	31	46.3%	3	4.5%	3	4.5%	32	47.8%
work	9	13.4%	13	19.4%	13	19.4%	17	25.4%	30	44.8%
community	2	3.0%	19	28.4%	4	6.0%	3	4.5%	28	41.8%
respect	25	37.3%	0	0.0%	4	6.0%	4	6.0%	26	38.8%
relationships	0	0.0%	21	31.3%	5	7.5%	3	4.5%	25	37.3%
success	24	35.8%	0	0.0%	4	6.0%	3	4.5%	25	37.3%
physical self-care	0	0.0%	0	0.0%	18	26.9%	11	16.4%	22	32.8%
environment	3	4.5%	15	22.4%	4	6.0%	5	7.5%	20	29.9%
kindness	20	29.9%	0	0.0%	6	9.0%	2	3.0%	20	29.9%
aesthetics	2	3.0%	10	14.9%	6	9.0%	6	9.0%	17	25.4%
love	0	0.0%	0	0.0%	11	16.4%	6	9.0%	15	22.4%
ambition	12	17.9%	0	0.0%	1	1.5%	0	0.0%	13	19.4%
achievement	10	14.9%	0	0.0%	1	1.5%	0	0.0%	11	16.4%
equality	9	13.4%	0	0.0%	2	3.0%	2	3.0%	10	14.9%
freedom	9	13.4%	0	0.0%	1	1.5%	0	0.0%	10	14.9%
health	0	0.0%	0	0.0%	7	10.4%	4	6.0%	10	14.9%

Note: The only recoding from the original identification was the images from the “social” category in the Picture Selection condition were recoded as “friends”. All other stimuli were taken as-is. This table includes values that were identified by at least ten participants. The header “N” represents the number of participants that identified that specific values stimulus at least once and the header “%” represents the percentage of participants that identified that specific values stimulus at least once.

VITA

Emmie R. Hebert
emmiehebert@gmail.com

CURRICULUM VITAE

EDUCATION

Doctor of Philosophy, Clinical Psychology **August 2013 - Present**
University of Mississippi, Oxford, MS
Chair: Kelly G. Wilson, Ph.D.

Bachelor of Science, Psychology **August 2009 – May 2013**
University of Louisiana at Lafayette, Lafayette, LA
Minor: English
Cum Laude

ACADEMIC AWARDS

University of Louisiana Distinguished Freshman	2009
TOPS Scholar	2009-2013
Honors Convocation Honoree	2011-2013
Hait-Lewis Award Recipient	Spring 2013

RESEARCH EXPERIENCE

Research Assistant **August 2013-Present**
University of Mississippi
Mississippi Center for Contextual Psychology
Assisting with research design, data collection, data entry, and feedback on fellow lab members' research projects

Ronald E. McNair Fellow **August 2012-May 2013**
University of Louisiana at Lafayette, Lafayette, LA
Lead a research project through the Ronald McNair Fellowship Program. Project included

literature review, research design, data collection, data analysis, and presentation.

Research Assistant

August 2011-May 2013

University of Louisiana at Lafayette, Lafayette, LA

Assist in participant recruitment, data collection, and data entry for a two-phase project that includes eight studies. Grant entitled, "The 'Me' I See: Verbal Learning Processes in Body Image Disturbance." Funded by the Louisiana Board of Regents Support Fund Research Competitiveness.

Subprogram Grant #: LEQSF(2011-14)-RD-A-29.

Supervisor: Emily K. Sandoz, PhD.

Research Assistant

January 2011-August 2013

University of Louisiana at Lafayette, Lafayette, LA

Louisiana Contextual Science Research Group

Assisting with research design, data collection, data entry, and analysis on various studies.

Supervisor: Emily K. Sandoz, PhD.

TEACHING EXPERIENCE

Graduate Teaching Assistant

January 2016 – May 2016

University of Mississippi, Oxford, MS

Course: Graduate Personality Assessment

Instructor: Danielle Maack, PhD.

Assisted in management of classroom activities, student questions, and practice and grading assessments including MMSE, Suicide Assessments, MINI-5, SCID-2, and ADHD Assessment (CPT, DIVA, etc).

Graduate Teaching Assistant

January 2016 – May 2016

University of Mississippi, Oxford, MS

Course: Graduate Statistics 2

Instructor: Michael T. Allen, PhD.

Assisted in management of classroom activities, student questions, BlackBoard, and grading.

Graduate Teaching Assistant

August 2015 – December 2015

University of Mississippi, Oxford, MS

Course: Graduate Cognitive Assessment

Instructor: Stefan Shulenburg, PhD.

Assisted in management of classroom activities, student questions, and practice and grading assessments including MMSE, WAIS-IV, and WIAT-II.

Graduate Teaching Assistant

August 2015 – December 2015

University of Mississippi, Oxford, MS

Course: Graduate Statistics 1

Instructor: Elicia Lair, PhD.

Assisted in management of classroom activities, student questions, BlackBoard, and grading.

Graduate Teaching Assistant**August 2015 – December 2015**

University of Mississippi, Oxford, MS

Course: Graduate Learning

Instructor: Kelly G. Wilson, PhD.

Assisted in student study groups, management of classroom activities, student questions, BlackBoard, and grading.

Graduate Teaching Assistant**January 2014-May 2013**

University of Mississippi, Oxford, MS

Course: Undergraduate Learning

Instructor: Kelly G. Wilson, PhD.

Assisted in management of classroom activities, student questions, and BlackBoard.

Graduate Teaching Assistant**August 2013-May 2014**

University of Mississippi

Course: Undergraduate Introduction to Psychology

Instructor: Karen Christoff, PhD.

Assisted in management of the Self-Paced (PSI) class along with the peer proctors. This included classroom management, Blackboard, student questions, grading, and tutoring.

Graduate Teaching Assistant**August 2013-December 2013**

University of Mississippi, Oxford, MS

Course: Undergraduate Abnormal Psychology

Instructor: Kelly G. Wilson, PhD.

Assisted in management of classroom activities, student questions, and BlackBoard.

Teaching Assistant**August 2011-December 2011**

University of Louisiana at Lafayette, Lafayette, LA

Course: Undergraduate Psychology of Adjustment (Psychological Flexibility)

Instructor: Emily K. Sandoz, PhD.

Assisted in management of Moodle (BlackBoard), student questions, class preparations, and grading

Teaching Assistant**August 2011-December 2011**

University of Louisiana at Lafayette, Lafayette, LA

Course: Undergraduate General Psychology I

Instructor: Emily K. Sandoz, PhD.

Assisted in management of Moodle (BlackBoard), student questions, writing workshops, class preparations, and grading

CLINICAL EXPERIENCE**Graduate Therapist****May 2014 – Present**

University of Mississippi Psychological Services Center, Oxford, MS

Supervisor: Shannon Hill, PhD.

Providing psychological services to university and community members. Treatments include Cognitive Behavior Therapy, Acceptance and Commitment Therapy, and Behavior Therapy.

Therapist Intern

July 2016 – Present

Integrated Health Clinic, Southaven, MS

Supervisor: Sheila Williamson, PhD., BCBA-D

Assist in psychological diagnostic assessment, behavior therapy, social skills groups, and Applied Behavior Analysis for children and adolescents with conditions such as Autism Spectrum disorder, ADHD, anxiety, depression, Fragile X Syndrome, and related neurodevelopmental and neurobehavioral disorders.

Education and Research Intern and Therapist

July 2014 – July 2015

The Baddour Center, Senatobia, MS

Supervisor: Shannon Hill, PhD.

Assist and build behavioral programs for residents of the center, provide individual therapy, run social skills groups, and provide positive behavior support.

Behavior Analysis Instructor – Level 1

May 2012 – January 2013

Therapy Center of Acadiana, Scott, LA

Supervisor: Justin Daigle, M.A., BCBA

Implementing programs designed by supervising board certified behavior analysis for children with a variety of developmental delays.

Workshops

Wilson, K. (Assisted by Solomon Kurz, Emily Jacobson, and **Emmie Hebert**) (2014, June). *An Experiential Introduction to Acceptance and Commitment Therapy (Not just for beginners)*, Minneapolis, MN

Kelly Wilson, Steven Hayes, Benji Schoendorff, Marie-France Bolduc, Jacque Pistorello, Patty Bach, Aki Masuda, Tim Weil, Emily Sandoz, & Josh Pritchard (2013, September). *ACT Boot Camp – Florida*, Orlando, FL

Exposure to psychological flexibility as a model, application of ACT methods, case conceptualization, the therapeutic relationship, combining FAP with ACT, ACT and behavior analysis, using the Matrix, applying ACT to parents, applying RFT, diversity issues in ACT, dealing with depression, trauma, and stigma, and ACT in college counseling students

Coyne, L. W., Davis, E., & Brown Birtwell, K. (2012, July). *Using ACT with Families of Autistic Children: Supporting Parents and Siblings*, Bethesda, MD

RELATED EXPERIENCE

Ronald E. McNair Graduate Student Mentor

July 2016

University of Mississippi, Oxford, MS

Faculty Mentor: Karen Kate Kellum, PhD

Student Mentee: Amanda Dortch, Tugaloo College

The University of Mississippi invented Ronald E. McNair scholars from the surrounding areas to participate in a summer research program. Students conceptualized and developed a research idea, conducted a related experiment/study, analyzed the data, and presented and wrote up findings within six weeks. Mentors guided and assisted the scholars in this process. Project was entitled: “A Child’s Perspective of Skin Tone”

Assistant to Director of Clinical Training

August 2015 – May 2016

University of Mississippi, Oxford, MS

DCT: Alan M. Gross, PhD

Duties included assisting incoming new graduate students in acclimation to the university and orientation, answering questions and assisting prospective graduate students, assisting in planning, organizing, and running interview weekend (February 2016), and assisting the following year’s incoming graduate students with registration and housing.

Qualtrics Workshop

April 2016

Ran a workshop at the University of Mississippi Conference on Psychological Sciences on basic functions of the survey system, Qualtrics. Participants viewed a live tutorial of these functions and were able to ask questions about specific research design functions of Qualtrics.

Co-chair & Co-organizer of Psychology Symposia/Colloquia 2012-2013

University of Louisiana’s Monthly Psychology Symposium/Colloquium (Psyched Out) Found a speaker or speakers to come to the University of Louisiana at Lafayette to speak about a variety of topics in psychology. The events were sponsored through the two psychology clubs, Psi Chi and Psy Co, both of which I held officer positions. Topics (to date) included: Perspectives of Human Language, Careers in Therapy and Assessment, Applied Behavior Analysis, Psychology Research Labs, The Flexible Self, and Anthetic Therapy

JMP Workshop

April 2012

Ran a workshop for the Louisiana Contextual Science Research Group on basic functions of the SAS statistical package, JMP

Experimental Psychology Study Group Director

July 2011-May 2012

Ran a free study group for students taking Experimental Psychology I at the University of Louisiana at Lafayette. Lafayette, LA

Program Committee Member

2011-2012

ACBS World Conference X, Bethesda, MD

Organized loose papers into symposiums to assist the conference chair, Emily Sandoz, Ph.D.

PUBLICATIONS

Sandoz, E. K., & Hebert, E. R. (2016). Using derived relational responding to model statistics

learning across participants with varying degrees of statistics anxiety. *European Journal of Behavior Analysis*. doi:10.1080/15021149.2016.1146552

Sandoz, E. K., & **Hebert, E. R.** (2015). Meaningful, reminiscent, and evocative: An initial examination of four methods of selecting ideographic values-relevant stimuli. *Journal of Contextual Behavioral Science*, 4, 277-280. doi:10.1016/j.jcbs.2015.09.001

PAPER PRESENTATIONS, SYMPOSIA, PANELS, & POSTERS

Leigland, S., **Hebert, E. R.**, Sandoz, E. K., & Pritchard, J. K. (2016, May). *The Value of Values: Looking at Values Through a Behavioral Analytic Lens*. Panel presentation at the annual convention of the Association for Behavior Analysis International, Chicago, IL.

Protti, T., Williams, N., Boullion, G. Q., **Hebert, E. R.**, Sandoz, E. K., & Bordieri, M. (2016, May). *Learning With Purpose: A Preliminary Demonstration of Derived Transformation of Values Functions*. Presentation at the annual convention of the Association for Behavior Analysis International, Chicago, IL.

Hebert, E. R., Kellum, K. K., Whiteman, K. C., & Wilson, K. G. (2015, May). *This Is How We Do: Use of Word-Level IRAP Analyses to Identify Relative Flexibility and Inflexibility with Specific Verbal Stimuli*. Presentation at the annual convention of the Association for Behavior Analysis International, San Antonio, TX.

Hebert, E. R., Kellum, K. K., Sandoz, E. K., & Wilson, K. G. (2015, May). *Raisin' Them Right: Undergraduate Behavior Analysis Research Labs in Psychology*. IGNITE presentation at the annual convention of the Association for Behavior Analysis International, San Antonio, TX.

Jacobson, E., Kurz, S., **Hebert, E. R.**, Kellum, K. K., & Wilson, K. G. (2015, May). *Early Bird Gets the A: Is GPA Related to When in the Semester Students Participate in Research Studies, and Does it Matter?* Presentation at the annual convention of the Association for Behavior Analysis International, San Antonio, TX.

Auzenne, J., Boullion, G. Q., **Hebert, E.**, Greene, S., Bordieri, M., & Sandoz, E. K. (2014, June). *Seeing is Believing: Toward a Behavioral Measure of Psychological Flexibility*. Presentation at the Association for Contextual Behavioral Science World Conference XII, Minneapolis, MN.

Auzenne, J., **Hebert, E.**, & Sandoz, E. K. (2014, June). *Making a Significant Difference: Creating a Context for the Development of Student Researchers in Psychology*. Presentation at the Association for Contextual Behavioral Science World Conference XII, Minneapolis, MN.

Hebert, E. R., Biglan, A., Murrell, A. M., Coyne, L. W., & Hayes, L. (2014, June). *ACT on Bullying: Using Contextual Behavioral Science with Bullying in Youth*. Panel

presentation at the Association for Contextual Behavioral Science World Conference XII, Minneapolis, MN.

Hebert, E. R., Kellum, K. K., & Wilson, K. G. (2014, June). *But Wait! There's More!: The Utility and Efficacy of an Undergraduate Research Lab at Ole Miss*. Presentation at the Association for Contextual Behavioral Science World Conference XII, Minneapolis, MN.

Jacobson, E. H. K., **Hebert, E. R.,** Kurz, A. S., Wilson, K. G., & Kellum, K. K. (2014, June). *Investigating the Relation Between Self-Compassion and Values-Based Action in a Sample of College Students*. Presentation at the Association for Contextual Behavioral Science World Conference XII, Minneapolis, MN.

Hebert, E. R., Biglan, A., & Ross, S. W. (2014, May). *Smack Talk: Bullying and Behavior Analysis*. Panel presentation at the annual convention of the Association for Behavior Analysis International, Chicago, IL.

Hebert, E. R., Kellum, K. K., & Wilson, K. G. (2014, May). *It's Not About Lunch Money: Effects of Past Bullying on Present Functioning in College Students*. Presentation at the annual convention of the Association for Behavior Analysis International, Chicago, IL.

Mullen, A., **Hebert, E.,** Protti, T., Bordieri, M., & Sandoz, E. (2013, October). *Raising the Confidence Coefficient: Derived Relational Responding, Statistics Anxiety, and Core Statistic Skills*. Poster presentation at the Association of Behavior Analysis International: International Conference. Merida, Mexico.

Anderson, R., **Hebert, E.,** Greene, S., Sandoz, E.K. (2013, October). *Asking About What Really Matters: A Comparison of Generating Different Values-Related Stimuli*. Presentation at the Louisiana Behavior Analysis Association 2013 Gulf Coast ABA Conference, Baton Rouge, LA.

Thibeaux, K. Mullen, A., Lebleu, E., Greene, S., **Hebert, E.,** Quebedeaux, G., & Sandoz, E.K. (2013, October). *The Mind In The Mirror: Derived Relational Responding and Body Image*. Presentation at the Louisiana Behavior Analysis Association 2013 Gulf Coast ABA Conference, Baton Rouge, LA.

Lebleu, E. L., **Hebert, E.,** Bordieri, M., Protti, T., & Sandoz, E. K. (2013, July). *Raising the Confidence Coefficient: Derived Relational Responding, Statistics Anxiety, and Core Statistics Skills*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Sydney, Australia.

Moyer, D. N., **Hebert, E.,** & Sandoz, E. K. (2013, July). *Goals worth reaching: Investigating the impact of a S.M.A.R.T. Goals intervention with and without a valued living component on students in an introductory psychology class*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Sydney, Australia.

- Daigle, J. J., Cordova, S., & **Hebert, E.** (2013, May). *Using a Response Cost Procedure to Reduce Stereotypy*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Fusilier, S., **Hebert, E.**, Greene, S., Sandoz, E. K. (2013, May) *What the stats?: The relationship between psychological flexibility and statistics anxiety*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Hebert, E.** & Sandoz, E. K. (2013, May). *Making a significant difference: Creating a context for the development of student researchers in psychology*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Hebert, E.** (2013, May). Symposium Chair. *Bridging the Gap: Bringing Contextual Behavioral Science to Traditional Behavior Analysis*. Symposium presented at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Miller, S. A., **Hebert, E.**, & Sandoz, E. K. (2013, May). *Verbal Behavior and RFT: From Philosophy to Practice*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Mullen, A., Quebedeaux, G., Greene, S., **Hebert, E.**, & Sandoz, E. K. (2013, May). *Assessing Psychological Flexibility: A RFT-Based Behavioral Measure*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Sandoz, E. K., Flynn, M. K., Kellum, K. K., & **Hebert, E. R.** (2013, May). Making change that matters: Values-based behavior plans in Applied Behavior Analysis. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Thibeaux, K., Greene, S., **Hebert, E.**, Quebedeaux, G., & Sandoz, E. K. (2013, May). *The Mind in the mirror: Derived relational responding and body image*. Presentation at the Association for Behavioral Analysis International Annual Convention, Minneapolis, MN.
- Caldas, S., **Hebert, E.** & Sandoz, E. K. (2013, April). To be or not to be present: An examination of whether present moment behaviors can be predicted. Presentation at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA
- Fusilier, S., **Hebert, E.**, Greene, S., & Sandoz, E. K. (2013, April). Asking about what really matters: A comparison of different methods of generating values-related stimuli. Presentation at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA
- LeBleu, E., Quebedeaux, G., **Hebert, E.**, Greene, S., Bordieri, M., Sandoz, E. K. (2013, April). Values: Impacts on relational responding. Presentation at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA

- Mullen, A., Quebedeaux, G., **Hebert, E.**, Greene, S., Bordieri, M., Sandoz, E. K. (2013, April). Learning to hate the body: An examination of derived relational responding in the context of body image disturbance and flexibility. Presentation at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA
- Primeaux, S., **Hebert, E.**, Bordieri, M., Protti, T., & Sandoz, E. K. (2013, April). Raising the confidence coefficient: Derived relational responding, statistics anxiety, and core statistics skills. Presentation at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA
- Auzenne, J., Quebedeaux, G., **Hebert, E.**, Greene, S., & Sandoz, E.K. (2013, April). *Transformation of Values Functions Through Derived Relational Responding*. Presented at the Undergraduate Academic Summit, Monroe, Louisiana.
- Boudoin, V., **Hebert, E.**, LeBleu, E., & Sandoz, E. K. (2013, April) *Present while Presenting: an Exploration of Present Moment Process Observation*. Presented at the Undergraduate Academic Summit, Monroe, Louisiana.
- LeBleu, E. L., Greene, S., Quebedeaux, G., **Hebert, E.**, & Sandoz, E. K. (2013, April). *Body Image Flexibility: Developments With Derived Relational Responding*. Presented at the Undergraduate Academic Summit, Monroe, Louisiana.
- Benoit, B., **Hebert, E. R.**, Quebedeaux, G., Greene, S., & Sandoz, E. K. (2012, July). *ACT on Campus: Facilitating Psychological Flexibility for College Adjustment*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D. C.
- Fusilier, S., Moyer, D. N., **Hebert, E. R.**, Jacobelli, J. & Sandoz, E. K. (2012, July). *The Aftermath of Anxiety: The Role of Psychological Flexibility in Math Anxiety in College Students*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D. C.
- Greene, S., **Hebert, E.**, & Sandoz, E. K. (2012, July). *Derived Relational Responding and Body Image Disturbance*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D.C.
- LeBlanc, S., Landry, D. E., **Hebert, E. R.**, & Sandoz, E.K. (2012, July). *Moving on up: The psychological inflexibility of first generation and low income freshmen*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D. C.
- Mullen, A., **Hebert, E.** & Sandoz, Quebedeaux, G., E. K. (2012, July). *Going From Null to Neat-O: Psychological Flexibility Processes Applied to a Behavioral Statistics Study Group*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D.C.

- Mullen, S., **Hebert, E.**, Greene, S., & Sandoz, E. K. (2012, July) *Really Matters: A Comparison of Different Methods of Generating Values-Related Stimuli*. Presentation at the Association for Contextual Behavioral Science Annual Convention, Washington, D. C.
- Hebert, E.** & Sandoz, E. K. (2012, May). *Going From Null to Neat-O: Psychological Flexibility Processes Applied to a Behavioral Statistics Study Group*. Symposium presented at the Association for Behavior Analysis International Conference, Seattle, WA.
- Boudoin, V., Marks, S. K., **Hebert, E.**, Greene, S., & Sandoz, E. K. (2012, May). *Asking About What Really Matters: A Comparison of Different Methods of Generating Values-Related Stimuli*. Symposium presented at the Association for Behavior Analysis International, Seattle, WA.
- Landry, D. E., **Hebert, E.**, & Sandoz, E. K. (2012, May). *Moving on Up: The Psychological Inflexibility of First Generation and Low Income Freshmen*. Symposium presented at the Association for Behavior Analysis International, Seattle, WA.
- Hebert, E.** (2012, March). *Psychological Flexibility and Acceptance and Commitment Therapy*. Seminar presentation at the University of Louisiana at Lafayette, LA.
- Hebert, E.** (2011, March). *ACT and Psychological Flexibility*. Seminar presentation at the University of Louisiana at Lafayette, Lafayette, LA.
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AFFILIATIONS

Association for Behavior Analysis International
Student Member

Association for Contextual Behavioral Science
Student Member

Association for Behavioral and Cognitive Therapies
Student Member

Phi Kappa Phi Honor Society **2013-2014**
Member

University of Louisiana at Lafayette Psychology Colloquium
2010-2013
Member
Secretary (Fall 2012 – Spring 2013)

Psi Chi International Honor Society **2011-2013**
Member
Historian (Spring 2012)

President (Fall 2012 – Spring 2013)

Outstanding Academic/Educational Program of the year (2013)

References available upon request